

REMARKS

Claims 1-13 were pending in this application. With this Amendment, the applicants are amending claims 1, 4, 9 and 11, canceling claims 2, 3, 6 and 10, and adding new claims 14 and 15. Therefore, claims 1, 4, 5, 7-9 and 11-15 are now the pending claims in this application.

The Office Action made three rejections of the claims. In particular, claims 1, 2, 4-7 and 9-13 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,746,989 to Murachi et al. in view of U.S. Patent No. 5,121,601 to Kammel. Claim 3 was rejected under Section 103 as unpatentable, based on the above two references and further in view of U.S. Patent No. 5,458,664 to Ishii et al. (the Ishii patent). Finally, claim 8 was rejected under Section 103 using Murachi and Kammel, and further in view of design choice.

Each of the three independent claims in this application has now been amended to incorporate the limitations of canceled claim 3. Therefore, the first and third rejections listed above have been rendered moot, and the previous rejection of claim 3 is now the only rejection remaining. For the reasons discussed below, the applicants believe that the amended claims are patentable because the Ishii patent fails to disclose the bypass being effective under all operating conditions, contrary to the assertion in the Office Action.

More specifically, the Office Action refers to Figure 11 of Ishii and notes that Ishii teaches that it is conventional to utilize the bypass to be effective under all operating conditions and at least 50% of particulate matter is trapped and combusted. The applicants respectfully disagree with this characterization of Ishii and refer to the description in column 6, line 64 through column 7, line 11, for support that Ishii does not, in fact, teach these features. In particular, at column 7, lines 3-5, Ishii teaches that the filter is bypassed entirely during regeneration of the filter, and regeneration is effected by flowing hot air from the light oil burner therethrough. In other words, no bypass is undertaken during filtration and 100% bypass of the filter (i.e., no filtration) is conducted when the filter is being regenerated.

The traps shown in the figures also confirm that they cannot accommodate any bypass during filtration. In particular, the trap used in connection with the embodiment shown in Fig. 11 is actually shown in Fig. 5(A). See column 6, line 67 and column 7, line 1 of the Ishii patent. If the exhaust gas flow path is carefully tracked in Fig. 5(A) with reference to the specification at column 4, line 59 through column 5, line 13, it can be seen that the structure does not allow for any bypass. In particular, exhaust gas enters case 112 through inlet port 113 and can only flow through the middle opening at the inlet because it is blocked by closure members 118b. The gas cannot flow straight through the inner channel shown in Fig. 5(A) due to the presence of closure member 118a, but instead must flow across the porous member 111 which make up the filter elements 117 (as reflected in Fig. 5(B)). Thus, the system of Ishii cannot be said to have an exhaust gas bypass effective under all operating conditions such that between 50 weight % and 85 weight % of the engine out particulates are collected.

In view of the above amendments and remarks, the applicants respectfully request reconsideration and allowance of this application.

Respectfully submitted,



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Enclosure: Version with Markings to Show Changes Made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

At page 1, line 29:

EP [0759713] 0758713 (Toyota) describes an addition to the CRT principles, involving the absorption in a NO<sub>x</sub> absorbent of NO from gases leaving the CRT-type combination of oxidising catalyst and diesel particulate filter or trap, formed by one of the reactions of NO<sub>2</sub> with carbon particles.

IN THE CLAIMS:

- 1                   1.       (Twice Amended) An emission control exhaust gas  
2     aftertreatment apparatus for exhaust gases from diesel engines comprising a source  
3     of NO<sub>2</sub>, a particulate trap, and an exhaust gas by-pass effective under all operating  
4     conditions, wherein a portion of the exhaust gases do not pass through the trap,  
5     such that between 50 wt % and [at most] 85 wt % of engine-out particulates are  
6     collected on the trap and combusted in the presence of said NO<sub>2</sub> in said trap.

Claims 2 and 3 have been canceled.

- 1                   4.       (Amended) An apparatus according to claim [2] 1, wherein  
2     the source of NO<sub>2</sub> is a catalyst which is effective to convert at least a portion of the  
3     NO in the exhaust gases to NO<sub>2</sub>.

Claim 6 has been canceled.

- 1                   9.       (Twice Amended) A method of controlling emissions from  
2     diesel engine exhaust gases by trapping and subsequently combusting said  
3     particulate matter, comprising trapping [at most] between 50 wt % and 85wt% of  
4     particulate matter in said exhaust gas in particulate trapping means and combusting  
5     said trapped particulate matter in the presence of NO<sub>2</sub> and causing a portion of said  
6     exhaust gases to by-pass said particulate trapping means under all operating  
7     conditions.

Claim 10 has been canceled.

1                   11.     (Amended) An emission control exhaust gas aftertreatment  
2     apparatus for exhaust gases from light duty diesel engines comprising a source of  
3     NO<sub>2</sub>, a particulate trap, and an exhaust gas by-pass effective under all operating  
4     conditions, wherein a portion of the exhaust gases do not pass through the trap,  
5     such that [at most] between 50 wt % and 85 wt % of engine-out particulates are  
6     collected on the trap and combusted in the presence of said NO<sub>2</sub> in said trap.

Claims 14 and 15 have been added.